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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/854,940 | 05/15/2001 | Yu Wang | 839-1012 | 7951 |

7590 09/11/2002
NIXON & VANDERHYE P.C.
8th Floor
1100 North Glebe Road
Arlington, VA 22201

EXAMINER

PEREZ, GUILLERMO

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2834

DATE MAILED: 09/11/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/854,940

Applicant(s)

WANG ET AL.

Examiner

Guillermo Perez

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The disclosure is objected to because of the following informalities: pages 1-3 are missing all the applications serial numbers.

Appropriate correction is required.

Double Patenting

Claim 21 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 5. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 21 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 21 recites the limitation "said rotor end shaft" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 3-8, 12, 14-17, 19-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Laskaris et al. (U. S. Pat. 5,548,168).

Referring to claim 1, Laskaris et al. disclose a synchronous machine having a rotor (10) comprising:

a rotor core (14);

a super-conducting coil winding (20) extending around at least a portion of the rotor core (14), the coil winding (20) having a coil end section adjacent an end of the rotor core (14), and

a coil support (66) bracing the end section and being thermally isolated from the rotor core (14).

Referring to claims 3 and 19, Laskaris et al. disclose that the coil support (66) includes a pair of plates (72) between which are sandwiched the coil end section.

Referring to claims 4 and 20, Laskaris et al. disclose a cryogenic coupling (84,86) providing cooling fluid to the coil winding (20), wherein the coil support (66) is cooled by conduction from the coil winding (20).

Referring to claims 5 and 21, Laskaris et al. disclose a rotor end shaft (34) having a slot (36) to receive the coil end section and coil support (66), and the end shaft (34) is thermally isolated from the coil support (66).

Referring to claims 6 and 22, Laskaris et al. disclose that the coil support (66) braces an entire length of the coil end section.

Referring to claims 7 and 23, Laskaris et al. disclose that the coil support (66) is transverse to an axis of the rotor core (14).

Referring to claims 8 and 24, Laskaris et al. disclose a second coil end section adjacent a second end of the rotor core, and a second coil support bracing the second coil end section (figure 1).

Referring to claim 12, Laskaris et al. disclose a method for supporting a superconducting coil winding on a rotor core of a synchronous machine comprising the steps of:

- bracing an end section of the coil winding with an end coil support;
- assembling the coil winding, end coil support and rotor core;

- attaching a rotor end shaft to the rotor core;
- thermally isolating the coil support from the rotor core and shaft.

Referring to claim 14, Laskaris et al. disclose that the assembling step includes inserting the end section of the coil and the coil support into a slot of the rotor end shaft.

Referring to claim 15, Laskaris et al. disclose that the bracing step includes applying plates on opposite surfaces of the end section.

Referring to claim 16, Laskaris et al. disclose cryogenically cooling the coil, and cooling the end coil support by heat transfer between the coil and the coil support.

Referring to claim 17, Laskaris et al. disclose a rotor for a synchronous machine comprising:

a rotor core having at least one rotor core end orthogonal to a longitudinal axis of the rotor;

at least one end shaft attached to the rotor core end;

a race-track super-conducting (SC) coil winding extending around the rotor core and having a coil end section adjacent the rotor end;

a coil support brace attached to the coil end section and thermally isolated from the rotor core and rotor end shaft.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 9-11, 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laskaris et al. in view of Rios (U. S. Pat. 4,277,705).

Laskaris et al. substantially teaches the claimed invention except that it does not show that the coil support further comprises side supports attached to a long side section of the coil. Laskaris et al. do not disclose that the coil supports further comprises at least one tension rod extending transversely through the rotor core, and coil housings attached to opposite ends of the tension rod, wherein the coil housings each attached to an opposite long side section of the coil. Laskaris et al. do not disclose that the tension rod extends through a conduit in the rotor core.

Rios discloses that the coil support further comprises side supports (30) attached to a long side section of the coil (16). Rios discloses that the coil supports (30) further comprises at least one tension rod (32) extending transversely through the rotor core, and coil housings (30) attached to opposite ends of the tension rod (32), wherein the coil housings (30) each attached to an opposite long side section of the coil (16). Rios discloses that the tension rod (32) extends through a conduit in the rotor core. Rios' embodiments have the purpose of preventing the movement of the windings in the rotor.

It would have been obvious at the time the invention was made to modify the machine of Laskaris et al. and provide it with the support configuration disclosed by Rios for the purpose of preventing the movement of the windings in the rotor.

3. Claims 2, 13, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laskaris et al. in view of Nottingham (U. S. Pat. 4,072,873).

Laskaris et al. substantially teaches the claimed invention except that it does not show that the coil support is a split clamp. Laskaris et al. do not disclose that the end section is braced with a split clamp.

Nottingham discloses that the coil support is a split clamp (25,26). Nottingham discloses that the end section is braced with a split clamp. Nottingham's invention has the purpose of securing the end turns in a highly conductive and mechanically strong union.

It would have been obvious at the time the invention was made to modify the machine and method of Laskaris et al. and provide it with the split clamp disclosed by Nottingham for the purpose of securing the end turns in a highly conductive and mechanically strong union.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Guillermo Perez whose telephone number is (703) 306-5443. The examiner can normally be reached on Monday through Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308 1371. The fax phone

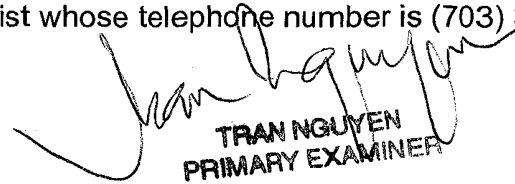
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numbers for the organization where this application or proceeding is assigned are (703) 305 3432 for regular communications and (703) 305 3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956.


TRAN NGUYEN
PRIMARY EXAMINER

Guillermo Perez
September 7, 2002